EVALUATION OF POTENTIAL TOXICITY OF PYRIDALYL EXPOSURE IN ALBINO RATS AND EARTHWORMS USING BIOLOGICAL AND BIOCHEMICAL PARAMETERS

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Abstract: Pyridalyl is a widely used insecticide in many countries around the world. In recent years, various environmental problems and substantial hazard to the public have led to an increased concern about potential toxicity from exposure to pesticides. The aim of the study is to explore the potential toxicity of pyridalyl exposure in albino rats and earthworms using physiologically–based parameters and biochemical markers such as hematological parameters, Serum esteradiol and testosterone hormones, total protein (TP), albumin (Alb), globulin (Gb), albumin/globulin ratio (A/G ratio), alanine aminotransferase (ALT), asparatate aminotransferase (AST), alkaline phosphatase (ALP), Amylase (AMS), urea, creatinine, Acetyl cholinesterase (AChE), protein pattern, immunoglobulin (IgG) and Comet DNA assay in rats. Coelomocyte viability and Phagocytotic activity, Neutral-red retention assay in earthworms. Male and female rats, Ratus norvegicus, of three ages {neonatal (7 days old), juvenile (21 days old), and adult (90 days old)} were treated orally with a single dose of technical grade pyridalyl {1/10 LD50 (500 mg a.i./kg b.w.)} in corn oil (acute exposure ). Groups of male rats were fed on pyridalyl (Pleo 50% EC-containing diet for 90 days at two doses 5.56 mg a.i./kg b.w./day (NOAEL) and 56 mg a.i./kg b.w./day (LOAEL) (subchronic exposure). Earthworms Allobophora caliginosa (Oligochaeta) were exposed to pyridalyl (Pleo 50% EC) at the LC25 (1.7 mg a.i./ml) and LC50 (2.9 mg a.i. /ml) using filter paper contact test. The obtained Data indicated that pyridalyl did not cause DNA damage in rats. Physiological, biochemical and immunological responses of pyridalyl exposure were recorded and discussed.

Key words: Pyridalyl, exposure, rats, earthworm, DNA damage, (IgG), Coelomocyte, biomarkers, immune response